MDOT
Michigan Department of Transportation

BRIDGE INSPECTION TECHNICAL ADVISORY
C&T Bridge Operations

SUBJECT: MBIS Enhancements: Special Inspections and New Security Provisions

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ISSUED BY: Bridge Inspection Program Manager

REVISION:

REVIEWED BY: Bridge Operations Engineer

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Effective January 31, 2008, the Michigan Bridge Inspection System (MBIS) will incorporate the following new functionality and security.

The new functionality includes the addition of "Special Inspection" reports for Fracture Critical inspections (SI&A # 92A), Underwater (Diver) inspections (SI&A #92B), Other Special inspections (SI&A #92C), and Fatigue Sensitive inspections. You will notice changes in the Open Print tab, Assign Bridges tab, and a new tab has been added "Special Inspections" that support these new reports.

Fracture Critical Member (FCM) inspections are hands-on inspections performed on the components of structures which have steel members in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse. The National Bridge Inspection Standards (NBIS) requires FCM inspections at intervals not to exceed twenty-four months. Certain FCMs require inspection at less than twenty-four-month intervals. Bridge owners are required to determine the level and frequency to which these members are inspected considering such factors as age, traffic characteristics, and known deficiencies.

Underwater (Diver) inspections are performed by divers on the underwater portion of a bridge substructure and the surrounding channel, which cannot be inspected visually at low water by wading or probing. The NBIS requires inspection of underwater structural elements at regular intervals not to exceed sixty months. Certain underwater structural elements require inspection at less than sixty-month intervals. Bridge owners are required to determine the level and frequency to which these members are inspected considering such factors as construction material, environment, age, scour characteristics, condition rating from past inspections and known deficiencies.

Other Inspections are performed by individuals who are not qualified team leaders but have qualifications to evaluate particular circumstances such as hydraulic engineers reviewing water flow at a given structure, technicians monitoring tilt or settlement of substructure units, or inspecting condition of temporary supports. There is no set interval for this type of inspection, and it is utilized at the discretion of the qualified team leader.

Fatigue Sensitive inspections are hands-on inspection of structures with fatigue prone details. This type of inspection is not required by the NBIS, but MDOT performs these on a 3 year cycle.

The new security provisions in the system are aimed at meeting the new requirements of the National Bridge Inspection Standards. Inspectors will be allowed to create and update only those reports for which they are qualified. All of this is connected through the User Profile screen and each of the requirements is fully explained with pop-up balloon help on the page. Once each year, users will be directed to this screen to confirm / update their credentials. For users not having credentials to create reports, the reports will be available in read-only format.

When you login for the first time (after the new release of MBIS), you will be redirected to the "Edit Profile" web page to set some / all of the required indicators. **This is a one-time setup**. **You do not need to change your password at this time**. Once you save the data on this page, you will be automatically logged out of MBIS. After logging in again - you will be directed to the MBIS home page (i.e. bridge list). The inspector will be asked to enter / confirm information related to their qualifications. The three areas that NBIS has specific qualification factors are for qualified team leader, diving inspector, and load rating engineer. The inspector will only be allowed access to edit or enter those areas / reports in MBIS for which they have confirmed they have the required qualifications. Such as, a qualified team leader is required for a routine inspection, therefore, the forms for a routine inspection will only be accessible to those inspectors who indicate the have the qualifications to perform the work. Please see the National Bridge Inspection Standards at http://www.fhwa.dot.gov/bridge/nbis.htm for details regarding the qualifications for the inspectors.

These enhancements will improve our bridge inspection program in several ways; The new reports help move us closer to an electronic bridge file, bring better uniformity and consistency in the data collection for these very important inspections, make it easier and more efficient for the inspector to record and document the inspection information, and will improve the ability of managers and administrators to monitor their network and perform quality control. Federal Highway Administration, in their oversight role, will have instant confirmation of the quality and timeliness for these inspections, like they do now for the routine inspections. This will provide confidence as they report on our program to Washington in the context of the recent tragedy in Minnesota.

The data collected on the new reports, inspection dates etc, will be available for output lists in MBRS. Also, it is possible to plot the bridge locations on maps in MS Streets & Trips from the latitude and longitude data in MBRS. This is a very effective and cost efficient way to graphically represent your network.

Thank you for your cooperation in this matter. If you have any questions, please contact either Rick Smith, Bridge Inspection Program Manager at 517-322-5715, or Dave Juntunen, Engineer of Bridge Operations at 517-322-5688.